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ABSTRACT

A study examined the effectiveness of using volunteer reading tutors to work with students who have reading difficulties. Changes in academic engaged time, active responding time, achievement, and student attitude were assessed, along with information from tutor evaluations. Subjects, nine intervention and eight control students with mild handicaps, in grades three-five, participated in the study over an 11-week period, with intervention subjects receiving at least 36 20-minute sessions with reading tutors during that time. The CISSAR (Code for Instructional Structure and Student Academic Response) observation system was used to obtain data on quantity of student responding time. Observations indicated significantly greater active academic responding (particularly reading aloud) and academic engaged time when students were with tutors, as well as significantly less inappropriate off-task behavior. During the intervention period, higher inappropriate off-task behavior was observed when the student was not with the tutor during reading time. Follow-up observations of intervention students without tutors revealed that changes in responses were not maintained. Changes over time were not found in achievement or in student attitude measures. Tutor evaluations suggested the possibility of gains in aspects of reading not measured by standardized tests (e.g., expression), as well as several improvements for students in social-emotional areas. (Five tables of data are included, and 19 references are attached.) (Author/RAE)

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PAIRED READING WITH ADULT VOLUNTEER TUTORS AS A READING INTERVENTION FOR STUDENTS WITH READING DIFFICULTIES

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Abstract

The effectiveness of using volunteer reading tutors to work with students who have reading difficulties was examined. Changes in academic engaged time, active responding time, achievement, and student attitude were assessed, along with information from tutor evaluations. Nine intervention and eight control students with mild handicaps participated over an 11-week period, with intervention subjects receiving at least 36 20-minute sessions with reading tutors during that time. Observations indicated significantly greater active academic responding (particularly reading aloud) and academic engaged time when students were with tutors, as well as significantly less inappropriate off-task behavior. During the intervention period, higher inappropriate off-task behavior was observed when the student was not with the tutor during reading time. Follow-up observations of intervention students without tutors revealed that changes in responses were not maintained. Changes over time were not found in achievement or in student attitude measures. Tutor evaluations suggested the possibility of gains in aspects of reading not measured by standardized tests (e.g., expression), as well as several improvements for students in social-emotional areas.

Volunteer Tutors as a Reading Intervention for Students with Reading Difficulties

The ability to read is the foundation upon which other skills are built. Yet, "reading failure is a problem that persists despite good intentions, a growing knowledge base in reading research, and over the past two decades, government intervention in the way of legislation and funding for compensatory and special education" (McGill-Franzen, 1987, p. 477).

Historically, in both general and special education, a great deal of attention has been focused on remediation of deficit skills assumed to exist within the child, without equal consideration of the instructional context within which reading occurs. Recently, efforts have expanded to explore classroom variables associated with positive outcomes in reading achievement. For example, in an investigation of 105 learning disabled students, Leinhardt, Zigmond, and Cooley (1981) found that 72% of the variance in posttest reading scores could be explained by reading pretest scores, student behaviors, and teacher behaviors. Investigators at the Exemplary Center for Reading Instruction (ECRI) found through a series of studies that student learning increased when: (a) students receive greater amounts of instructional time, (b) students are reinforced for increasing oral reading speed and accuracy, (c) students are provided with supervised practice time, (d) instruction is introduced in a three-step process (demonstration, prompt, and practice), and (e) teachers elicit overt, correct responses (Reid, 1986). This kind of information about factors that contribute to and impinge upon success in reading can serve as groundwork for formulating and implementing sound reading intervention strategies.

Instructional time and time on task are two variables that have received considerable attention in the search for correlates of reading success. Subsumed under the concept of "opportunity to learn," operational definitions of allocated time, academic engaged time (AET), and active academic responding time (ART) have been

developed. Allocated time is the amount of time actually designated for instruction within a particular subject area. AET describes the time the student is passively or actively engaged in academic learning, and ART refers to time spent making active academic responses such as reading aloud.

Initial studies of "opportunity to learn" variables focused on nonhandicapped populations. The Beginning Teacher Evaluation Study, designed to explore the conditions that foster learning, found considerable variance in time allocated to reading (i.e., 60 to 140 minutes per day in fifth grade classrooms). Students were engaged in listening or observable academic responses for an average of 64 minutes of reading time (Rosenshine, 1980). In contrast, Greenwood, Delquadri, and Hall (1984) reported lower levels of engaged time when passive responses (i.e., looking at teacher) were excluded from measures of engaged time in reading. A study of nonhandicapped third and fourth grade students (Graden, Thurlow, & Ysseldyke, 1983) found that, on the average, students spent only 10 minutes per day in silent reading and less than one minute per day reading aloud. Hall, Delquadri, Greenwood, and Thurston (1982) reported an average of only 4 minutes of oral reading per day and 11 minutes of silent reading for 12 elementary students.

It is clear that students spend relatively small amounts of their school day actively involved in the reading process. What impact does this have on achievement? Leinhardt et al. (1981) reported that an average of 1 minute per day of additional silent reading would increase posttest scores by 1 point; an increase of 5 minutes per day would result in a one month gain (grade-equivalent scale) of additional reading achievement. The BTES findings relevant to time and achievement (Rosenshine, 1980) include the following:

(1) The amount of time allocated to instruction in a given content area is positively correlated with learning in that content area.

(2) There is a positive correlation between proportion of allocated time in which students are engaged and learning.

(3) The proportion of time in which students are successful in reading or math is positively correlated with learning.

(4) More substantive interaction between the student and teacher is correlated with higher levels of student engagement.

Allocated and engaged times for students with mild handicaps were explored as part of the Instructional Alternatives Project at the University of Minnesota. The proportion of time allocated to reading instruction for these students was found to be greater in special education settings than in mainstream classrooms (Ysseldyke, Thurlow, Christenson, & Weiss, 1987). Students with mild handicaps also had significantly higher proportions of AET and ART in resource room settings during reading compared to mainstream classrooms during reading (O'Sullivan, Ysseldyke, Christenson, & Thurlow, 1988). These kinds of findings suggest that students with mild handicaps experience less opportunity to learn during mainstream reading instruction than their nonhandicapped peers.

It has been suggested that one of the ingredients for successful reading outcomes is to maximize poor readers' time on reading tasks. Gaskins (1988) describes how organized teaching styles result in more productive use of instructional time. Leinhardt et al. (1981) emphasize the need to increase the amount of direct supervised instruction that students receive:

> The kind of classroom practices we are suggesting derive from a strong belief that changes in the instructional environment that lead to an increase of as little as 5 to 10 minutes per day of reading will go a long way toward improving the educational experiences of children with learning disabilities. (p. 358)

High student-teacher ratios in many schools impede the efforts of educators to implement these changes. Many teachers have too many students to provide additional instructional time to individual students. A potential solution is the use of peer and adult tutors to provide increased practice time, which is hypothesized to improve academic responding time and achievement (Hall et al., 1982). Support for this hypothesis was provided by Searles, Lewis, and Morrow (1982), who reported

significant increases in achievement when parents served as tutors for their first-grade children. In addition, BTES data showed higher engagement rates when student-teacher contact was increased. As Fisher and his colleagues explain: "Increasing the number of teaching personnel (aides, volunteers, peer tutors, etc.) is a good way to increase the amount of interactive instruction a child receives" (Fisher, Berliner, Filby, Marliave, Cahen, & Dishaw, 1980, p. 31). Data from nonhandicapped populations suggest that increased practice time is positively associated with higher levels of engagement and achievement. The use of volunteer tutors is a cost-effective method for providing students with additional supervised practice time.

In this study, we investigated the effectiveness of reading tutors for increasing the academic engaged time, active academic responding time, and academic achievement of students with reading difficulties. The following research objectives were addressed:

(1) To examine the effectiveness of the use of adult tutors for increasing the academic engaged time of learners with mild handicaps.

(2) To determine the extent to which changes in engaged time are related to changes in achievement.

(3) To determine the extent to which the use of adult tutors is associated with changes in student attitudes toward reading.

Method

Subjects

Nine children with mild handicaps (6 male, 3 female) in grades 3 (n = 2), 4 (n = 1), and 5 (n = 6) from a suburban school district were selected to participate in the reading intervention project. Eight additional students with mild handicaps (7 male, 1 female) in grades 3 (n = 3), 4 (n = 1), 5 (n = 2), and 6 (n = 2) served as a control group for the reading intervention subjects. The special education categories within which the reading intervention subjects were served included learning disability

(n = 6), emotional/behavior disorder (n = 2), and a combination of the two (n = 1). Control group subjects were served in the categories of learning disability (n = 5), emotional/behavior disorder (n = 2), and a combination of the two (n = 1).

Students were randomly assigned to intervention and control groups, after those meeting several criteria were identified. Potential subjects included students with Individualized Educational Plans (IEPs) who were classified as having mild handicaps. From this list, subjects selected were those with parent permission to participate who were: (a) enrolled in grades 3 - 6, (b) teacher-identified as delayed in oral reading and/or in reading comprehension skills, (c) teacher-identified as potentially benefiting from extra reading practice, and (d) not currently involved in other intervention projects. Of eleven subjects originally selected, two grade 6 students asked to be dropped from the project during the first weeks because they did not want to miss class time.

Information was available on six of the seven teachers of the intervention group subjects (one teacher had three students; one teacher did not provide information), and six of the seven teachers of the control group subjects (one teacher had two students; one teacher did not provide information). Each group included 3 male and 3 female teachers. All were certified as general education teachers. The average number of years of teaching for the intervention group subjects was 24.5 years (SD = 4.2, Range = 20-32 years), and for the control group subjects was 27.7 years (SD = 3.4, Range = 24-32 years).

Measures

Academic responding observation system. The CISSAR (Code for Instructional Structure and Student Academic Response) observation system was used to obtain data on quantity of student responding time. This system focuses the observation on one target student. Student responses are recorded every 10 seconds on a portable

computer. The CISSAR system, developed at the Juniper Gardens Children's Project in Kansas City (Greenwood, Delquadri, & Hall, 1978; Stanley & Greenwood, 1980), includes 19 response codes that combine to form the following composite variables: active academic responses, task management responses, and inappropriate off-task responses (see Table 1). An additional composite is academic engaged time, which is formed by adding the attending response to the active academic responding composite. Most reports of student observations focus on "on-task time" or "engaged time"; these variables are comparable to the academic engaged time composite. It should be noted that one of the codes is different from the original CISSAR code. "Self-stimulation" in the original system was deleted and a task management response (waiting) was added. "Waiting" was defined as the time the student is not involved in any response and there is an obvious "wait" time such as when the student is standing in line (see Stanley & Greenwood, 1980 for definitions of other student responses).

[Insert Table 1 about here]

Training of CISSAR observers occurred over a two-week period in formal training sessions conducted by project staff members. Training focused on learning and practicing code definitions and use of the portable computer to enter codes; this was followed by 2-3 days of classroom practice. Training was based on the CISSAR Observer and Trainer's Manual (Stanley & Greenwood, 1980), which was modified to reflect changes in the observation codes and use of the computers rather than paper and pencil coding. Interobserver agreement was monitored throughout the training period, and checks were conducted six separate times during the data collection period. At the time that data were collected for this study, the observers were in their third year on the project and were very experienced in using the observation

system. During the current study, using the portable computers to enter data, average interobserver agreement was 88% for student response codes.

Achievement measures. Both standardized and curriculum-based measures were administered to intervention and control subjects. The BASIS (Basic Achievement Skills Individual Screener; Psychological Corporation, 1983) is an individually administered, norm-referenced measure of reading, math, and spelling achievement. Test-retest reliability coefficients range from .81-.96 across content areas and grade levels. Only performance on the reading subtest was examined in this study.

The Curriculum-Based Measurement (CBM) model used in this project was developed by the Minneapolis Public School System. The reading measure was based on the Holt Reading Series. The student is given one minute to read a standard passage that came from a third-grade book. Performance on the standard passage was examined in this study.

Reading attitude scale. A modified version of the Reading Attitude Scale developed by Heathington (1975) was used. Twenty-four items provided statements related to reading (e.g., You feel happy when you're reading, You often read in your room at home). In the original version, items were stated to reflect both positive and negative attitudes. In order to simplify the language demands of the scale and to facilitate data analysis, items were rewritten so that all reflected a positive attitude toward reading. Heathington developed two scales: one to serve grades 1-3, and a second for 4-6. Given the smaller range of grades represented in the intervention group in this study (grades 3-5) and the need to compare attitude change across grade levels using the same instrument, the attitude scale for grade 4-6 children was administered to all intervention subjects. Scoring was based on a 5-point Likert scale (1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree). Test-retest reliability of the scale was .87. Diagnostic clusters of reading activity defined by

Heathington were: (a) free reading in the classroom, (b) organized reading in the classroom, (c) reading at the library, (d) reading at home, (e) other recreational reading, and (f) general reading.

Tutor evaluation forms. A brief evaluation form was completed by tutors at the end of the study. The form asked tutors to rate the reading improvement of the students with whom they worked in terms of fluency, word recognition, and comprehension. Additionally, tutors were asked to comment on the factors promoting and impinging upon the success of the intervention for their students.

Procedures

A list of students with mild handicaps was obtained from each of the elementary schools within the school district. Teachers were asked to designate the students most likely to benefit from additional reading practice. From this list, students in grades 3-6 were randomly assigned to intervention and control groups. Each intervention student was assigned a 20-30 minute period 4 days per week to work with a tutor. The tutoring times were chosen so that students would not miss their regular reading instruction since the reading intervention was designed to supplement rather than supplant classroom instruction. Four students had the same tutor all four days. Five students had two different tutors each week. All tutoring was carried out on an individual basis. No student ever worked with more than two different core tutors, nor were tutors assigned more than two students. This facilitated rapport building between student and tutor. It also provided the opportunity for tutors to become quite familiar with the student's style of learning. Duration of the project was 11 weeks. Due to absences and classroom interruptions, there was some variability in the actual number of times students were tutored. However, all subjects were tutored a minimum of 36 sessions within the 11-week period. The number of sessions for each participant ranged from 36 to 44.

Tutor recruitment. The recruitment process targeted primarily a senior citizen population, although younger adult volunteers also were accepted. Tutors were selected for the project on the basis of their interest in working with students, their ability to commit time to the project on a regular basis, and prior experience working with or parenting children. No professional educational experience was required.

Bulletins describing the intervention project were placed in grocery stores, libraries, and senior citizen apartment buildings within a five mile radius of the school system. Presentations were made to senior citizen community groups. Other recruitment techniques included radio announcements and notices placed in community newspapers and church bulletins. Coordinators of volunteers at each of the elementary schools provided names of other potential volunteers. A list of 23 potential tutors was developed. Telephone or home-based interviews were conducted and volunteers were assigned the position of either a core tutor (serving 1-2 children on a regular basis) or a substitute tutor.

The 12 core tutors (3 male, 9 female) included 8 senior citizens and 4 young/middle-aged adults. Four of the 12 tutors had professional teaching experience. Substitute tutors received similar training and filled in when core tutors were ill or on vacation. Volunteers cited the following reasons for participating: (a) tutoring provides good background experience for a teaching career, (b) tutoring meets a desire to be useful, (c) tutoring is a way to teach children enjoyment of reading, and (d) tutoring in reading can help children develop critical skills.

Tutor training. Core and substitute tutors attended a one-day five hour training session as well as a follow-up session three weeks after tutoring began. Training included instruction in the following areas: (a) paired reading technique, (b) flash card drill, (c) cloze procedure, and (d) record keeping.

The paired reading technique, developed in the mid-70s in England (Morgan, 1986), was chosen for the project because of its emphasis on oral reading fluency and on extracting meaning from context. Paired reading has two phases: reading together and reading independently. By reading simultaneously with the student, the tutor was able to model appropriate inflection, which aids in comprehension. When the student read alone, the student received verbal reinforcement for accurate, fluent reading. Paired reading directed tutors away from overemphasis on phonics. When a child made a mistake or failed to read a word correctly, the tutor supplied the word and encouraged the child to repeat. It should be noted that the students still received phonics instruction from the regular classroom teacher. The tutoring experience provided more oral reading practice and one-to-one supervision than is generally available in the mainstream classroom.

For this project, a few modifications of the paired reading technique were made. The amount of reading together was reduced when older students were embarrassed by having an adult read with them. Also, a component of paired reading involves self-selection of materials by the child. Given the need for teacher support and cooperation, teacher preference of reading material was considered. In some cases, students read from the basal readers. In most cases, students read from library books. Tutors worked with teachers to monitor the difficulty level of the materials.

In order to increase word recognition skills, tutors used flashcards to give students additional practice with words they had missed the previous day. Finally, if time allowed, a cloze procedure (tutor omits a word from a sentence; child fills in the word using the contextual cues) was implemented to strengthen comprehension skills. Tutors were encouraged to discuss the previous day's reading with the child each day, using both recall and inference-level questions. Following each session, tutors kept notes about the type of reading material used, the number of pages read,

and general comments regarding the student's progress, motivation, and any relevant behaviors.

Data Collection and Analysis

Pre-post reading achievement tests were administered to intervention and control subjects. Raw scores on the BASIS were converted to standard scores with a mean of 100 and a standard deviation of 15. On the CBM standard passage, the raw score reflected the number of words read correctly. For the pre-post reading attitude scale, which was administered only to intervention subjects, individual item scores (Likert scale numbers) were recorded for each subject, along with the six cluster scores (e.g., free reading in classroom, organized reading in classroom).

CISSAR observations were conducted during reading instruction in the mainstream classroom on three separate occasions for intervention subjects: at the onset of the project in January (baseline), at the end of the project in March (post), and 6-8 weeks after post (follow-up). Control subjects were observed only in January (baseline) and April (post). If the student did not receive reading in the mainstream, observations were made in the setting in which the majority of reading instruction was received. Baseline observational data were collected the week prior to the onset of tutoring. Post-test data were collected the final week of intervention, with the tutoring session included in the observation. Follow-up observation data were collected to determine maintenance effects of the intervention. Because of wide variance in the duration of observation sessions, student response times are reported in terms of proportion of time observed.

The tutor evaluation form was filled out by each core adult volunteer at a final breakfast honoring the volunteers.

Results

Academic Responding

Shown in Table 2 for the intervention and control groups, at baseline and post, are the average percentages of time in which students were (a) making active academic responses (ART), (b) academically engaged (AET), (c) involved in management responses (MGMT), or (d) making inappropriate off-task responses (INAP). In addition, two specific reading responses of interest (read aloud, read silently) are included in the table, as are average percentages of time in ART, AET, MGMT, and INAP for the intervention group at follow-up.

[Insert Table 2 about here]

It should be noted that the means and standard deviations are based on just seven students in the control group because one student in that group received no reading instruction on the day of baseline observation (due to a surprise assembly program in the school). Responses that were academic in nature clearly comprised the greatest percentage of time during which students were observed, regardless of group. Active academic responding, on the average, ranged from about 35% to 50%, whereas academic engaged time was consistently about 80% of the observed time.

Statistical analyses of the difference between baseline and post scores for the intervention and control groups revealed that none of the differences between the two groups in these change scores was statistically significant. However, statistical significance was found for the percentages of time that students were reading aloud, $t(14) = 4.34$, $p < .001$. As is evident in Table 2, the intervention group subjects showed a 20% increase from baseline to post while the control group subjects showed a 2% decline in reading aloud time. While intervention subjects started with a very low percentage of read aloud time, their post percentage was clearly out of the range shown by control group subjects.

Comparisons of baseline and post percentages confirmed the significance of the finding for reading aloud. For the intervention subjects only, dependent t tests indicated a significant difference between baseline and post in the percentage of time reading aloud, $t(8) = 5.38$, $p < .001$. In addition, this type of analysis revealed a significant difference between baseline and post percentages for inappropriate off-task responding for intervention subjects only, $t(8) = 2.08$, $p < .05$, with a significant increase occurring (7.2% at baseline to 15.0% at post).

Table 3 is a summary of the percentages of time in composite student responses and in reading responses at the post observation overall and just during the time with the tutor. During tutor time, the intervention subjects were making active academic responses an average of 78% of the time, and were academically engaged 89% of the time. Reading aloud comprised 65% of the students' time with the tutor, on average, compared to 22% overall for the total post observation time. Statistical comparisons of the overall and tutor percentages revealed significant differences for ART, $t(8) = 5.81$, $p < .001$, for AET, $t(8) = 2.72$, $p < .05$, for INAP, $t(8) = 2.99$, $p < .01$, for reading aloud, $t(8) = 6.16$, $p < .001$, and for reading silently, $t(8) = 4.57$, $p < .01$. ART, AET, and reading aloud were higher with the tutor compared to overall, while inappropriate off-task responses and reading silently were lower with the tutor.

[Insert Table 3 about here]

For the intervention group, comparisons were made between observations at baseline and observations at follow up in the late spring. None of the differences was statistically significant.

Achievement Data

Repeated measures ANOVAs (one between, one within) were used to test differences in achievement between control and intervention subjects over time. Dependent variables were (a) BASIS standard scores in reading, (b) BASIS raw scores

in reading, and (c) CBM raw scores on the standard reading passage. Table 4 is a summary of baseline and post achievement scores for both groups.

[Insert Table 4 about here]

No significant differences in BASIS scores were found between groups as a function of time. Raw scores on the standard reading passage were not found to differ significantly for the intervention and control groups, but there was a significant difference overall between baseline and post scores, $F(1,15) = 26.86$, $p < .001$, with scores significantly higher at post than at baseline. The interaction of group (intervention, control) and time (baseline, post) was not significant. Despite the few statistically significant findings, the general trend was for a slightly smaller percentage of control subjects, compared to intervention subjects, to show increases from baseline to post on the BASIS (22% vs 33%) and the standard reading passage (78% vs 89%).

Reading Attitude Scale

The Reading Attitude Scale was administered only to the intervention group. The Likert 5-point scale was treated as an interval scale. Dependent t tests were used to assess changes in attitude from the onset to the conclusion of the intervention. Individual tests were conducted for each of the six reading clusters. No significant differences were found with respect to changes in reading attitude.

Tutor Evaluation

The tutors completed a six-item Likert Scale to evaluate improvement in the following areas: (a) variety of books selected by student, (b) reading fluency, (c) reading expression, (d) word recognition, (e) interest in reading, and (f) reading comprehension (see Table 5). In cases where two tutors worked with the same child, ratings were averaged. Tutors rated each item according to the following scale: 0 =

no difficulty in this area, 1 = no improvement noted, 2 = slightly improved, 3 = moderately improved, 4 = much improved, and 5 = greatly improved.

[Insert Table 5 about here]

Tutors observed the greatest changes in reading fluency, expression, word recognition, and reading comprehension. Six of the nine students showed at least moderate improvement in all of these areas, according to tutors. All showed improvement in at least two of these areas. Fewer positive changes were noted by the volunteers in the variety of books selected by the students and in their level of interest in reading.

Discussion

A primary goal of the volunteer tutor reading intervention was to increase the academic engaged time and the active academic responding time of students with reading difficulties. This goal was met in this study, if the goal is not interpreted to mean that increased academic responding and engagement rates will be maintained without the tutor's presence. Clearly, if the goal is to increase the active responding of a student, it can be done by having the student read aloud in a one-to-one situation with a tutor.

It is somewhat disconcerting that the percentage of time spent in inappropriate off-task behavior also showed a significant increase. Since the increase did not occur during the time with the tutor, it is possible that the student was "over-reacting" to the lack of one-to-one structure when back with the entire class for reading time. On the other hand, it is important to note that even at its increased level, the percentage of inappropriate behavior time is not much different from that of the students in the control group. The students who received tutorial

assistance appeared to have displayed even slightly lower levels at baseline measurement.

Increased active academic responding time for the intervention subjects was not maintained after the reading intervention ended. This is not an unexpected finding, particularly since increases were due almost entirely to increases in reading aloud responses, responses not particularly compatible with the typical classroom setting for longer than a few minutes.

Informal rating scales and standardized measures of achievement also were used to analyze the effectiveness of the reading intervention program. While students did not show significant gains on measures of attitude or academic achievement, tutor ratings indicated positive effects of the program. There are several explanations for the discrepancy between tutor ratings and outcomes on the BASIS and CBM measures. First, there may be a bias effect. Because tutors invested considerable time and energy in the project, they may have felt some need to report a favorable outcome, even though they could fill out the scale without identifying themselves. Also, during feedback sessions, the volunteers quite openly discussed limitations of the program as well as benefits (see Recommendations section).

Changes in student attitudes about reading also were a target of the reading intervention. No statistically significant changes were found. However, the program was relatively short in duration. It is not surprising that children with a history of learning and/or emotional difficulties did not show a significant attitude change toward reading over an 11-week period.

As described previously, students were selected partly on the basis of teacher report of low reading ability. Specific quantitative criteria were not established for inclusion in the project nor were students eliminated based on pretest achievement scores. It became clear that some students recommended by teachers actually had average reading skills, but were youngsters whom teachers felt would profit

emotionally from individual adult attention. One might suspect that these students would be more likely to exhibit social-emotional rather than academic gains following program participation. Neither the reading attitude scale nor the achievement tests were designed to measure generalized improvement in the social-emotional area. However, several tutors established strong friendships with their students and observed changes in the children's ability to relate to them.

Many of the positive changes observed by the tutors were qualitative in nature (i.e., better expression, improved fluency). It may be that students improved in areas not adequately measured by standardized tests. This possibility is given some support in recent work by Morrow (1988) who found that one-to-one story readings with preschool children led to increases in the number and complexity of children's questions and comments. Another explanation is the limited usefulness and sensitivity of these measures to assess subtle, short-term changes. Additionally, some students showed negative reading growth as an artifact of the instrument's ceiling rule. At Spring testing, some students missed one or two more items than at the beginning of the test. Because of the discontinuation rule, testing was terminated and these students did not have the option of attempting many of the items they had in the Fall. Other research-based tutoring projects (Anderson, Wilson, & Fielding, 1988) reported negative reading growth because in spring, near the end of the school year, students were less motivated to put forth full effort on the testing. "Spring fever" may have also influenced the testing results with this group of Minnesota youngsters.

The project has several limitations. The sample size was small and true random selection was not achieved. Older students, especially sixth graders, felt self-conscious when pulled out of class. Tutors, at times, needed more contact with the classroom teacher than there was time to provide, especially with respect to appropriate book selection. Finally, although there was uniformity in the amount of

time students were scheduled for tutoring, the length and number of sessions varied considerably because of other class and school activities. Yet, overall, tutors and teachers expressed satisfaction with program outcomes.

Recommendations

Suggestions for implementation of future volunteer tutorial projects include the following:

- Ensure that students are committed to the project; seek both parent and student agreement to participate.
- Implement the program before or after school so students are not pulled out from class.
- Attempt to have a volunteer coordinator based at each school to facilitate scheduling, book selection, and substitute tutors.
- Strive for a longer, less intense program, since it will probably be more effective in the long run. Many students lost interest because they were tutored four days a week. A two-day a week program over the course of a semester or school year may improve student level of motivation.
- Conduct tutoring in settings with few distractors (i.e, not a hallway or library). This may significantly improve the student's ability to profit from instruction.

We have evidence that time on task in reading is related to reading achievement. It is time to be bold and intervene, investigating alternative, cost-effective ways to increase reading opportunities for students. Collaboration among researchers and educators is imperative. The successful program components should be preserved and disseminated, along with recommendations for implementing future intervention projects. Individual program variables should be experimentally manipulated. These include, but are not limited to the following: length of tutoring sessions, duration of project, type of tutor training, degree of teacher involvement, degree of parent participation, student characteristics, instructional method, and amount of additional reading. As Anderson et al. (1988) state, "The really penetrating research remains to be done" (p. 300).

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Table 1

Student Response Codes in CISSAR Observation System

Student Response Code				Composite
Writing Playing Academic Games Read Aloud Read Silently Appropriate Talk Answer Question Ask Question				Active Academic Responding (ART)
Attending to Task	+	ART	=	Academic Engaged Time (AET)
Raising Hand Looking for Materials Moving to New Academic Station Playing Appropriately Waiting				Task Management (MGMT)
Disruptive Playing Inappropriately Inappropriate Task Inappropriate Talk Inappropriate Locale Looking Around				Inappropriate Off-task (INAP)

Table 2

Percentages of Time in Composite Student Responses and Reading Responses

Student Response		Baseline		Post		Follow-up	
		Int[a]	Contr[b]	Int[a]	Contr[b]	Int[a]	Contr[b]
ART	M	44.7	44.6	51.6	36.6	35.4	-
	SD	16.9	13.7	15.6	11.7	12.3	-
READ ALOUD	M	1.6	8.0	21.6	5.6	2.6	-
	SD	2.0	7.4	11.1	7.7	2.4	
READ SILENTLY	M	24.1	15.4	17.0	2.7	16.9	-
	SD	14.1	14.6	7.5	2.1	10.6	
AET	M	82.3	78.2	78.6	79.9	82.5	-
	SD	9.4	19.6	12.3	10.7	10.9	
MGMT	M	10.5	7.3	6.4	7.0	7.2	-
	SD	6.6	7.3	2.6	5.4	2.8	
INAP	M	7.2	14.5	15.0	13.1	10.3	-
	SD	4.9	14.3	12.8	9.3	10.0	

[a]Intervention (Int) subjects' percentages based on minutes observed, where the average for nine students was 40.3 minutes (SD = 11.5) at baseline, 61.7 minutes (SD = 15.4) at post, and 46.0 minutes (SD = 16.9) at follow-up.

[b]Control (Contr) subjects' percentages based on minutes observed, where the average for seven subjects was 46.9 minutes (SD = 19.9) at baseline, and 56.2 minutes (SD = 16.2) at post.

Table 3

Percentages of Time in Composite Student Responses and Reading Responses at Post Overall and With Tutor Only

Student Response		Overall[a]	With Tutor[b]
ART	M	51.6	77.9
	SD	15.6	20.9
READ ALOUD	M	21.6	65.1
	SD	11.1	29.6
READ SILENTLY	M	17.0	4.8
	SD	7.5	8.3
AET	M	78.6	89.2
	SD	12.3	13.7
MGMT	M	6.4	6.2
	SD	2.6	6.7
INAP	M	15.0	4.6
	SD	12.8	12.3

[a]Based on observation time of 61.7 minutes (SD = 15.4).

[b]Based on observation time of 21.6 minutes (SD = 7.8).

Table 4

Achievement Results

	Intervention		Control	
Measure	Baseline	Post	Baseline	Post
BASIS Standard Score				
M	93.2	89.6	93.6	87.0
SD	9.0	11.2	13.0	7.0
BASIS Raw Score				
M	42.2	41.9	41.5	43.2
SD	9.5	10.1	12.5	10.5
CBM Raw Score				
M	77.8	93.2	83.9	106.8
SD	36.1	35.2	46.9	56.5

Table 5

Tutor Evaluations of Student Improvement

Item	M[a]	Range	N
1. The student is choosing a greater variety of books	1.8	1-4	6
2. The student is reading more fluently	3.0	3	9
3. The student is reading with more verbal expression	3.3	2-4	9
4. The student is making fewer word recognition errors	3.2	3-4	8
5. The student is more interested in reading	2.4	1-5	8
6. The student understands more of what he/she reads	2.7	1-5	8

[a]Ratings were on a scale from 1 to 5, where 1 = no improvement noted, 2 = slightly improved, 3 = moderately improved, 4 = much improved, and 5 = greatly improved. Items for which the tutor indicated there was no difficulty in the area to begin with were excluded from calculations.